

Title: Take Me Out to the Ballgame

Brief Overview:

This learning unit covers many of the real-life decisions and calculations that are made when planning a trip. In this unit, the trip will be a cross-country tour of major league ballparks. Students will use a wide variety of skills in determining the many expenses and potential routes of travel. It is an academic and athletic journey which rolls through math, english and geography, giving the students a memorable experience that will stay with them forever.

Link to Standards:

- **Problem Solving** Students will use problem solving approaches to investigate data collection and the organization of this data. Ultimately conclusions and strategies will be based upon the results of the information they gather.
- **Communication** Students will demonstrate the ability to analyze and express their results through informative letter writing.
- **Reasoning** Students will demonstrate their ability to reason mathematically. They will make predictions, tables, and ultimately real-life decisions.
- **Connections** Students will connect mathematics to language arts through letter writing and journal keeping. Additionally, they will explore U.S. geography in the mapping and planning of a cross country journey.
- **Estimation & Computation** Students will demonstrate the ability to estimate and compute distance in miles, time, money and decimals.
- **Measurement** Students will demonstrate and apply concepts of measurement using maps and customary units. They will estimate and verify measurements. They will apply measurement to interdisciplinary and real-world problem solving situations.
- **Statistics** Students will organize and interpret data through the use of travel logs. From the collected data, they will create graphs and make inferences.

Grade/Level:

Grades 4-7

Duration/Length:

This lesson will take 8-10 class periods.

Prerequisite Knowledge:

Students should have working knowledge of the following skills:

- Estimating, rounding, and place value
- Addition, subtraction, and multiplication of decimals
- Map skills
- Friendly letter format
- Scale and proportion
- Measurement
- Use of a compass
- Recording and analyzing simple data
- Ability to read a calendar/schedule

Objectives:

Students will:

- work cooperatively in groups.
- collect and organize data from resources.
- estimate and measure distance between two destinations.
- perform number computations with the use of decimals.
- calculate time in problem solving.
- record, display, and analyze data.
- relate mathematics to real-world situations.
- communicate mathematical data through writing.

Materials/Resources/Printed Materials:

- Team Schedules (contact Major League Baseball Office)
- United States Map (large copy for each group; available from a travel agency)
- Calculator
- Student Worksheets-spreadsheets 1-4
- Highlighter pen
- Pencil
- Colored pencils/Crayons
- Compass
- Writing paper
- Envelopes
- Small (baseball) stickers
- Calendar
- Pocket folder for each pair of students

Development/Procedures:**Activity 1: "Rapid Response"**

- Pass out Student Resource 1, the letter from the Uncle with the description of the adventure.
- After reading the letter aloud, discuss the opportunities now available to the potential road-trippers.
- Either before class or during class, pair the students with a classmate that they can work with for an extended period of time.

- After reading the letter and splitting into pairs, pass out a folder with pockets for each pair, the schedule of games and names of the Major League teams to each pair.
- Brainstorm some suggestions as to how the students will select 10 teams out of the entire list.
- Using Student Resources #1 and #2, have the students write a letter in response to the Uncle's proposal. Remind the students that this is a big decision and that they should choose their teams carefully.
- Have the students store their work in the "Take Me Out To The Ballgame Folder."

Activity 2: "Mapping Out The Route"

- Start off by telling the pairs that this is not a race or a contest. It is a test of accuracy and should not be rushed. They will have a chance to work at their own pace and should be encouraged to take their time. When they finish a section, they can move ahead at their pace!
- Pass out the Scoring Rubric and explain to them how they will be graded. Tell them that they should refer to this throughout the project if they have questions about what is expected of them. Have them store this in their folder, telling them that they will fill it out at the end.
- Pass out the U.S. Roadmap (Student Resource 14). One to each pair. Also pass out 10 baseball stickers and a highlighter pen to each pair.
- Each pair should put the stickers down first, directly over the city where the team plays.
- Looking carefully at the map, locate the major highways that connect the cities. It is at this point that the students need to figure out the order in which they will visit the cities. Remind them to look at the schedules and to move in the most logical fashion.
- Once they have chosen their route carefully, have the students mark their final plan with the highlighter.
- Have them title the map and store it in their folder.

Activity 3: "Amazing Miles"

- Pass out Student Resource 5, the directions and spreadsheet to keep track of mileage.
- Starting in Baltimore, the students will be estimating the mileage between each of the stops on their trip. The easiest way to do this is by using the scale at the bottom of the map and a regular classroom ruler. This does not need to be exact, just close.
- Once they have the mileage, have them use the Miles Per Gallon figure for the R.V. and the 55 Miles Per Hour as constants. Assume that these values never change throughout the trip.
- As they measure the distances and determine the miles travelled, have them fill in the information on the worksheet.
- When the worksheet is finished and the cities all visited, have them store their work in the folder.

Activity 4: "Fill 'er Up"

- Pass out Student Resource 6. This is the travel log which keeps track of the fuel purchased and amount spent.
- In this section, they should pull out the map and follow the route carefully along the highways. Again, starting in Baltimore, have them move along the route, using the mileage from the previous section.
- They need to figure out how far they can go on one tank of gas. Once they determine this, they can move along the route and stop periodically for gas. Whenever they stop and fuel up, they should mark it in their Fill 'er Up fuel log.

- Make sure they don't plan on running out of gas and use 50 gallons as their refueling point.(45 would be better)
- Once they have completed the journey and written in all of their gas stops, have them fill in the total and store the log in their folder.

Activity 5: "Food Log"

- Pass out Student Resource 7 to each group when they are ready for it. This keeps track of the money they will spend on food.
- The left hand column will be the starting date and then consecutive days until the trip is over. They will need to eat three meals every day.
- Remind them that the prices are different inside and outside of the stadium (See S.R.3.).
- Remind them that this is the log for the entire group and that all figures should include the costs for the whole group.
- After they figure the food costs for each day, have them total up the money spent on food for the whole trip.
- When they are finished, store the food log in their folder.

Activity 6: "Get Your Tickets Here"

- Explain to the students that it is time for them to purchase their tickets. Hand out student resource #8. Also at this time, tell the students to take out student resources 3 and 14. A calculator may also be taken out at this time.
- Inform the students that they should now read the directions for Student Resource #8. After they have read the directions, tell them to input the dates, the location of the games, the teams playing, and the cost of the tickets on Student Resource #8.
- Remind the students that they must enter all the information required and that they must give a total cost for the tickets at the end of their data sheet.
- Tell the students that when they have completed Student Resource #8 place it in their "Take Me Out To The Ballgame Folder."

Activity 7: "Groovy Graphs"

- Explain to the students that their next assignment for this unit has to do with creating graphs. Let them know that they have to choose the type of graph they want to do and the topic that they wish to graph information about. Pass out Student Resource #9 and read the directions aloud.
- After reading the directions, review the types of graphs available to them, and brainstorm a list of topics that deal with their unit.
- After the discussion on graphs and topics, pass out a ruler, a compass, and colored pencils/crayons to the each cooperative team.
- Once all of the materials have been distributed, tell the students that they must now work with their partner(s) to create a graph. Remind the students to reread the directions to see what is required in their graph.
- Inform the students that when they finish their graphs, they must write a descriptive paragraph about their graph.

Activity 8: "Home Sweet Home"

- After the students have completed all the parts of Activity 7, inform them that they are now going to relate their mathematical trip to language arts by writing a friendly letter to someone at the home.

- Pass out Student Resource #10 and have the students read the directions silently with their partner.
- When all of the teams have read their directions, explain that each student must write a letter that deals with something from their trip.
- Review the five parts of a friendly letter with the students. Inform them that this is the format that is required for their letters. Also, this would be a great time to discuss how to address an envelope because they will have to complete this task as well.
- After discussing the friendly letter format and the format for addressing an envelope have the students begin their letters. Remind the students that the key elements for their letter are the format, spelling, and complete sentences.
- The students should place their finished letters in an addressed envelope. You may also have the students peer edit their letters before a final copy is placed in an envelope.

Activity 9: "The Bottom Line"

- Now that the friendly letter is out of the way, it is time to pass out Student Resource #11. Read the directions aloud. While reading the directions, list the different materials that the students will need in order to complete this assignment.
- Have the students locate Student Resources 5, 6, 7, and 8. Explain that the data they need in order to complete Student Resource #11 is found on these four worksheets.
- Complete Student Resource #11.
- Have the students write a brief letter to their Uncle that explains the figures on Student Resource #11 and what they mean.

Activity 10: " U.S. Tour Part Two"

- This is their final task. All of their figures should be completed at this point.
- Pass out Student Resource 12 to them when they are ready. Have them read through the worksheet carefully, sketching out their thoughts before beginning the letter.
- They should write their ideas on a separate sheet of paper, using their calculations and logs to support their suggestions. Make sure they are very specific in their recommendations.
- Finally, have the students check over all of their work, put the sheets in order, and pull out the Scoring Rubric (Student Resource 13); see below.

Performance Assessment:

This project will be assessed using the scoring rubric labeled Student Resource 13. Both the student and the teacher will grade the project, and the final score will be expressed as a fraction. The rubric should be given out to the students at the beginning of the project so they can refer to it throughout the two week period. When their work is finished, the student should score the project before handing everything in to the teacher. If there are major discrepancies between the teacher's grade and the students', time should be made for them to get together and discuss the work.

Authors:

William C. Whiteford
Gilman School
Baltimore City, MD

Teddy L. Patterson
John Ruhrah Elementary School
Baltimore City, MD

Ballpark Student Resource 1

567 Ballpark Drive
Baltimore, MD 21221
July 6, 1996

Dear Johnny,

Hello, it's your Uncle Sam. I wanted you to know how proud I am of your efforts in school. Therefore, for a graduation gift, I am offering you and a close friend an all expenses paid tour of ten of our nations greatest major league ballparks. You will have the opportunity to pick the ten ballparks you choose to visit. I thought it would be neat to travel in my brand new Winnebago. However, you and your friend will be responsible for arranging dates you will attend games. Also, you will have to figure out the travel route and expenses for your trip.

The work that you will be required to complete is on the next several pages. You must first select the teams that you wish to see in person. You have the option of picking from any of the teams in the American League and the National League. Next, you have to write back to me informing me of the person you chose to go with you as well as the teams you want to see. From there, you have to map out your destination and calculate prices for gasoline, food, tickets, and total miles we will be traveling. After you have made your calculations, please send me a letter of correspondence explaining your plan. I know it seems like a lot of hard work, but it will be well worth it. I look forward to hearing from you!

Sincerely yours,

Uncle Sam

Rapid Response

Dear Uncle Sam,

Date _____

Thank you so much for the great offer! I can't wait to go. I've decided to take my good friend _____. He/She has never been in an R.V. and is a huge baseball fan, so I'm sure you'll like him/her. Although it was not easy, we've decided on the 10 stadiums we would like to visit. They are:

HomeTeam

City

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

We have all of the necessary information and will start planning the details right away. Again, thank you so much and we will talk to you soon with the details.

Sincerely,

TRAVEL GUIDE

1. Gas Price Per Gallon= \$1.29
2. Ticket Prices: American League Games= \$13.00 per person
National League Games= \$9.00 per person

3. Food Prices:

	<u>On Road</u>	<u>At Ballpark</u>
Breakfast	\$2.95/person	
Lunch	\$4.07/person	\$7.60/person
Dinner	\$5.36/person	\$8.25/person

4. Team Schedules (See Attached)
5. Road Map of the United States (See Attached)

Mapping out the Route

Starting on Opening Day at Camden Yards, plot out your course on the attached map. Mark each city you plan to visit with a sticker and trace your course with a highlighter. Be sure to plan your course in pencil before highlighting! Also, on a separate sheet of paper, describe the major highways we will use to travel from city to city.

Amazing Miles

Your R.V. only gets 12 miles per gallon, and the tank can hold 50 gallons. Also, you have to remember that the speed limit is 55 miles per hour on the major highways. Therefore, using the scale at the bottom of the map, figure out how far you will travel from city to city. On the attached spreadsheet, fill in the projected mileage between cities. At the conclusion of your journey, be sure to include the total number of miles traveled.

	FROM-TOWN,STATE	TO-TOWN,STATE	# OF MILES	\$ SPENT
EX.	BALTIMORE, MD	PITTSBURGH, PA	268	\$28.77
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
				TOTAL

Fill 'er Up

To give your Uncle an idea of how much money will be spent on gasoline, you need to calculate approximately how much fuel you will purchase. Using the mileage in the previous section and the information given to you on the Travel Guide, create a fuel log using the attached spreadsheet. Keep in mind, your tank holds 50 gallons. However, you don't want to run out of gas. Therefore, you should fill up the tank before all 50 gallons are used up.

EX.	DATE	TOWN,STATE	# OF GALLONS	TOTAL COST
	4/13/__	BALTIMORE, MD	45	\$56.00
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				

Total_____

Food Log

Your mother will be contacting your Uncle Sam to make sure that you ate three meals per day. If you chose to attend afternoon game, your are required to eat lunch at the ballpark. If it is a night game, you are required to eat dinner at the ball park. Using the food prices listed on the Travel Guide and your travel schedule, calculate your daily and total food costs. As in previous sections, you have to list your expenses on the attached spreadsheet. Remember, you are calculating costs for the three of you.

EX.	DATE	BREAKFAST COST	LUNCH COST	DINNER COST	TOTAL
	5/30/96	\$7.14	\$16.08	\$25.44	\$46.57
1					
2					
3					
4					
5					
6					
8					
9					
10					
11					
12					
13					
14					
16					
17					
18					
19					
20					

Total_____

Get Your Tickets Here

Now that you have planned your route and figured out your fuel needs, it's time to determine the cost of the tickets to each of the games. Fortunately, none of the games you will be attending are sold out. Therefore, you can simply go to the gate just before game time and buy your tickets. The ticket prices are included on your Travel Guide. On the following spreadsheet, you will need to list the date, location, teams playing and cost of the tickets. Naturally, your Uncle will also need to know the total cost of the tickets purchased.

EX.	DATE 2/13/96	LOCATION Camden Yards	TEAMS Orioles/Blue Jays	TICKET COSTS \$39.00
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
				Total_____

Groovy Graphs

Finally, your last requirement for this assignment is to create two different types of graphs on two different topics. You may choose from the various types of graphs, including bar, pie (circle), line, and pictographs. The graphs that you create should be accurate, properly labeled, and easy to read. You may choose any topic you wish as long as it relates to something on your trip.

On a separate sheet of paper, describe your graphs and what they show in complete sentences. Keep in mind that each section is worth four points and neatness counts.

Home Sweet Home

Of course, your friends and family will be interested in hearing from you while you are on your trip across America. Therefore, using the "friendly letter format," correct spelling, and complete sentences, you and your friend must write one brief letter each, relating to something on your trip. You should also put your letters in envelopes and address them properly.

The Bottom Line

Now that you've compiled all of this great data, you need to get it all onto one page and explain it to your Uncle. In the spaces provided, fill in the totals from your spreadsheets and the total cost of the trip. When this is completed, write a letter to your Uncle in the space provided and explain each of the figures and what they mean.

Total number of miles traveled_____

Total amount of money spent on fuel_____

Total amount of money spent on food_____

Total amount of money spent on tickets_____

TOTAL _____

Dear Uncle Sam,

U.S. Tour - Part Two

Your Uncle has read your figures and totals and is extremely impressed. He is so proud and excited about the trip that he told his best friend George all about it. George has decided that he wants to do the same thing with his grandson who will finish the fifth grade in two years. The only problem is that George could not spend as much on the trip as you and Uncle Sam.

Now that you are an expert on vacation planning and the expenses involved with traveling, we need you to help George. On the following page, list and explain **three** things George could do to cut costs and make the trip more affordable. Be as specific as possible, using the first figures you came up with as well as the ones planned for George.

Teacher Student

- 1. Rapid Response (3 points)**
 - Date the letter.
 - Write in both student's names.
 - List the 10 teams and cities
- 2. Mapping Out the Route (3 points)**
 - Put a title on the map.
 - Label the cities with the stickers.
 - Neatly highlight the travel route.
- 3. Amazing Miles (3 points)**
 - Complete the spreadsheet.
 - Keep your work neat and legible.
 - Make sure your figures and totals are accurate.
- 4. Fill'er Up (3 points)**
 - Complete the spreadsheet.
 - Keep your work neat and legible.
 - Make sure your figures and totals are accurate.
- 5. Food Log (3 points)**
 - Complete the spreadsheet.
 - Keep your work neat and legible.
 - Make sure your figures and totals are accurate.
- 6. Get Your Tickets Here (3 points)**
 - Complete the spreadsheet.
 - Correctly spell the cities and teams.
 - Make sure your figures and totals are accurate.
- 7. Groovy Graphs (3 points)**
 - Title and label your graph appropriately.
 - Make sure your graph accurately reflects the data.
 - Make it colorful, neat and easy to read.
- 8. Home Sweet Home (3 points)**
 - Use the correct format for writing the letter.
 - Use the correct format for addressing the envelope
 - Use correct punctuation and grammar.
- 9. The Bottom Line (3 points)**
 - Completed table
 - Accuracy of numbers
 - Completed letter to Uncle
- 10. U.S. Tour Part Two (3 points)**
 - Suggestion 1
 - Suggestion 2
 - Suggestion 3